

List of Claims:

1. (Original) An olefin oligomerization process comprising:
  - (a) contacting a feedstock comprising one or more C<sub>2</sub> to C<sub>6</sub> n-olefins and from about 0.1 wt% to about 25 wt% of an iso-olefin under oligomerization conditions with surface-deactivated ZSM-23 to produce an oligomerized olefin product; and
  - (b) separating from said oligomerized olefin product a C<sub>12</sub>+ fraction containing less than 0.5 atom% of quaternary carbon atoms and including C<sub>12</sub>+ oligomers having ethyl side groups.
2. (Currently Amended) The process according to claim 1, wherein said feedstock contains ~~about~~ 0.5 wt% to about 5 wt% of an iso-olefin.
3. (Previously Presented) The process according to claim 1, wherein said iso-olefin is iso-butylene and/or iso-amylene.
4. (Previously Presented) The process according to claim 1, wherein said one or more n-olefins in the feedstock are selected from propylene, n-butene and mixtures thereof.
5. (Previously Presented) The process according to claim 1, wherein said feedstock is the unreacted effluent stream from an MTBE unit.
6. (Currently Amended) The process according to claim 1, wherein said feedstock contains less than 100 ppm of dimethyl ether, and a sulfur content of less than 10 ppm.
7. (Cancelled)
8. (Previously Presented) The process according to claim 1, wherein said ZSM-23 has been surface deactivated with a sterically hindered nitrogenous base.
9. (Original) The process according to Claim 8, wherein said sterically hindered nitrogenous base is 2,4,6-collidine.

10. (Previously Presented) The process according to claim 1, wherein said oligomerization conditions include a temperature of about 160 to about 250°C.
11. (Previously Presented) The process according to claim 1, wherein said oligomerization conditions include a temperature of about 190 to about 230°C.
12. (Previously Presented) The process according to claim 1, wherein said oligomerization conditions include a temperature of about 210 to about 220°C.
13. (Previously Presented) The process according to claim 1, wherein said oligomerization conditions comprise a pressure in the range of from about 500 psig (3447 kPa (gauge)) to about 1500 psig (10342 kPa (gauge)).
14. (Previously Presented) The process according to claim 1, wherein said oligomerization conditions comprise a pressure in the range of from about 750 psig (5171 kPa (gauge)) to about 1250 psig (8618 kPa (gauge)).
15. (Previously Presented) The process according to claim 1, wherein said oligomerization conditions comprise a weight hourly space velocity of from about 0.1 hr<sup>-1</sup> to about 4.0 hr<sup>-1</sup>.
16. (Previously Presented) The process according to claim 1, wherein said oligomerization conditions comprise a weight hourly space velocity of from about 0.2 hr<sup>-1</sup> to about 3.0 hr<sup>-1</sup>.
17. (Cancelled)
18. (Previously Presented) The process according to claim 1, wherein said C<sub>12</sub><sup>+</sup> fraction has an average of from about 0.8 to about 2.0 C<sub>1</sub>-C<sub>3</sub> alkyl branches per carbon chain.
19. (Previously Presented) The process according to claim 1, wherein said C<sub>12</sub><sup>+</sup> fraction has an average of from about 0.8 to about 1.3 C<sub>1</sub>-C<sub>3</sub> alkyl branches per carbon chain.
20. (Currently Amended) A method for producing a long chain alcohol mixture comprising contacting the C<sub>12</sub><sup>+</sup> fraction produced by the process of claim 1 ~~any preceding claim~~ with carbon

monoxide and hydrogen under hydroformylation conditions and in the presence of a hydroformylation catalyst.

21. (Previously Presented) A method for producing an alkylaromatic compound comprising contacting an aromatic compound with the  $C_{12+}$  fraction produced by the process of claim 1 under alkylation conditions and in the presence of an alkylation catalyst.

22. (Original) A method for preparing an alkylaryl sulfonate by sulfonating the alkylaromatic compound produced by the method of Claim 21.

23. (Previously Presented) An olefin oligomerization process comprising:

(a) contacting a feedstock comprising one or more  $C_2$  to  $C_6$  n-olefins and from about 0.1 wt% to about 25 wt% of an iso-olefin under oligomerization conditions with surface-deactivated ZSM-23 to produce an oligomerized olefin product including at least one iso-olefin reaction product and at least one  $C_{12+}$  reaction product; and

(b) separating from said oligomerized olefin product said at least one  $C_{12+}$  reaction product, wherein said at least one  $C_{12+}$  reaction product is characterized as containing less than 0.5 atom% of quaternary carbon atoms;

(c) obtaining a  $C_{12-}$  reaction product having a higher concentration of quaternary carbon atoms than said at least one  $C_{12+}$  reaction product from step (b).

24. (New) The process of claim 1, further including isolating a  $C_8$  fraction having a higher concentration of quaternary carbon atoms than said at least one  $C_{12+}$  fraction from step (b).